

FIG.1A

CGGGAGGAATATGCTGGAGCTCCTGCCATTAAACAAAAGAGGAAACTTTCAA 60

ACATEGGCTGAAGCAAAGACCCACTGGGAGGCCCTGTCTTATCCCTTAATT 120
 M A E A K T H W L G A A I S L I P L I F 20
 TCCTCATCTCTGGGGCTGAGGAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180
 L I S G A E A A S F Q R N Q L L Q K E P 40
 CAGACCTCAGGGTTGGAAAATGTCCAAAAGTTCAGTCCTGAAATGATCAGGGCTTTGG 240
 D L R L E N V Q K F P S P E M I R A L E 60
 AGTACATAGAAAACCCCTTAAACGCACAAATGAAATAGTGGAGGAACAATATACTCCCTC 300
 Y I E N P F K R T N E I V E E Q Y T P Q 80
 AAAGCCTTGCTACATGGAAATCTGTCTCCAAAGAGCTGGGAAACTGACAGGACAAACA 360
 S L A T L E S V F Q E L G K L T G P N N 100
 ACCAGAAACGCTGAGGAGATGGATGAGGAGCAAAACTTATACGGATGATGAAGATGATA 420
 Q K R E R M D E E Q K L Y T D D E D D I 120
 TCTACAAGGCTAAACATTGCCTATGAAAGATGTGGTGGGGAGAAGGACTGGAACCCAG 480
 Y K A N N I A Y E D V V G G E D W N P V 140

FIG.1B

TAGGGAGAAATAGAGAGTCAAACCCAGGAAGAGGTGAGAGACAGCAAAGAGAATAATAG 540
E E K I E S Q T Q E E V R D S K E N I G 160
GAAAAATGAAACAATCAACGATGAGATGAAACGCTCAGGGCAGCTTGGCATCCAGGAAG 600
K N E Q I N D E M K R S G Q L G I Q E E 180
AAGATCTCGGAAAGAGAGTAAGACCAACTCTAGATGATGTCTCCAAGTAATTGCCT 660
D L R K E S K D Q L S D D V S K V I A Y 200
ATTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTTACAGAATGGCAAATGGGG 720
L K R L V N A A G S G R L Q N G Q N G E 220
AAAGGGCCACCAGGCTTTGAGAAACCTCTGATTCTCAGTCTATTATCAGCTGATTG 780
R A T R L F E K P L D S Q S I Y Q L I E 240
AAATCTCAAGGAATTACAGATAACCCCCAGAAGACTTAATTGACGATGCTCAAACGGGG 840
I S R N L Q I P P E D L I E M L K T G E 260
AGAAGCCGAATGGATCAGTGGAACCGGAGGGAGCTTGCACCTCCTGTTGACCTAGATG
K P N G S V E P E R E L D L P V D L D D 280
ACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCAAATAAGGATGCTCTCCAAGA 960
I S E A D L D H P D L F Q N R M L S K S 300

FIG.1C

GTGGCTACCCCTAAACACCTGGTCGTTGGGACTTGAGGCCCTACCAAGACGGGCTCAGTG 1020

G Y P K T P G R A G T E A L P D G L S V 320
 TTGAGGATATTAAATCTTCTGGATGGAGAGTCAGCAAATCAGAAAACGTCGTATT 1080
 E D I L N L G M E S A A N Q K T S Y F 340

TTCCCAATCCATATAACCAGGAGAAAGGTTCTGCCAAGGCTCCCTTATGGTGTGCTGGAAAGAT 1140

P N P Y N Q E K V L P R L P Y G A G R S 360
 CTAGATCGAACCGCTTCCCCAAAGCTGGCTGCCTCACATGTTGAAACAGACAGATGG 1200
 R S N Q L P K A W I P H V E N R Q M A 380
 CATATGAAAACCTGAACCGACAAGGATCAAGAATTAGGTGAGTACTTGGCCAGGATGCTAG 1260
 Y E N L N D K D Q E L G E Y I A R M L V 400
 TTAAATACCCCTGAGATCATTAATTCAAACCAAGTGAAGCCAGTTCCCTGGTCAAGGCTCAT 1320

K Y P E I I N S N Q V K R V P G Q G S S 420
 CTGAAGATGACCTGCAGGAAGAGGAACCAAATTGAGCAGGCCATCAAAGAGCATTTGAATC 1380
 E D D L Q E E Q I E Q A I K E H L N Q 440

FIG.1D

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AAGGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGTGAGCAAAGGTCCCTGTGGGGC 1440

G S S Q E T D K L A P V S K R F P V G P 460

CCCCGAAGAATGATGATAACCCCAAATAGGCAGTACTGGGATGAAGATCTGTTAATGAAAG 1500

P K N D D T P N R Q Y W D E D L L M K V 480

TGCTGGAATACCTCAATCAAGAAAAGGCAGAAAAGGGAGGCATATTGCTAAGAGAG 1560

L E Y L N Q E K A E K G R E H I A K R A 500

CAATGGAAATATGTAAGCTGCTTCAATTACCCCTACTTTCATTCCTCCACCCCAA 1620

M E N M * 504

GCAAATCCAACATTTCTCTCAGTGTGACTCTATCCTGTTAACACTGTAATATCT 1680

TTAAATGATGTACAGGCAGATGAAACCAGGTCACTGGGGAGTCTGCTTCATTCTGCA 1740

GCTGTTATCTTGTTATGGATATGTTATGACTCCTTGATAAAAAATTATTA 1800

TGTCCATTCAAGAAAGATATCTATGACTGTGTTAATAGTATATGCTGTGG 1860

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FIG. 1E

CATGTTGATGCCACATATGATAAAAAAGTGTCCATAATTCTAATTGAAAGTTAAAT 1920

ATTIATTGAATTATTGTTACTGTCTGTAGCGTTGTGGAGTACTGGACCAAAAAAT 1980

AAAGCATTATAAATAA 1997

FIG.2A

CGGGAGGAATATGCTGGAGCTCCTGCCATATAACAAAAGAGGAAATTCTTCAA 60

U014799-1
ACATGGCTGAAGCAAAGACCCACTGGCFTGGAGCAGCCCTGTCTCTTATCCCTTTAATT 120
M A E A K T H W L G A A L S L I P L I F 20
TCCTCATCTGGGCTGAAGCAGCTCATTTCAGAGAACCCAGCTGCTCAGAAAGAAC 180
L I S G A E A A S F Q R N Q L L Q K E P 40
CAGACCTCAGGTTGGAAAATGTCCAAGTTCAGTCCTGAAATGATCAGGGCTTGG 240
D L R L E N V Q K F P S P E M I R A L E 60
AGTACATAGAAAACCTCCGACAACAAGCTCATAAAGAAAGCTTAAGGCACATGCAATT 300
Y I E N L R Q Q A H K K E S L S T C N S 80
CCCTCCTATGTATGAGAGAATTCCAGGGATAACCCTTAAACGGCACAAATGAAATAGT 360
L L C M K R I P G I T P L N A Q M K * 98...
GGAGGAACAAATACTCCTCAAAGCCTTGCTACATGGAATCTGTCTTCCAAGAGGCTGGG 420
GAAACTGACAGGACCAACAAACAGAAACGTGAGAGGATGGATGAGGAGCAAAACTTTA 480

FIG.2B

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TACGGATGATGAAGGATATCTACAAAGGCTTAATAACATTGCCTATGAAAGATGTGGTCGG 540

GGGACAAGACTGGAACCCAGTAGAGGAGAAATAGAGAGTCAAACCCAGGAAGAGGTGAG 600

AGACAGCAAAGAGAATAAGGAAAAATGAACAAATCAACCGATGAGATGAAACGCTCAGG 660

GCAGCCTTGGCATCCAGGAAGAGATCTTCGGAAAGAGAGTAAAGACCAACTCTCAGATGA 720

TGTCTCCAAGTAATTGCCTATTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTT 780

ACAGAATGGGCCAAATGGGAAAGGGCACCCAGGCCTTTGAGAAAACCTCTTGAATTCTCA 840

GTCTATTATCAGCTGATGAAATCTCAAGGAATTACAGATAACCCCCAGAAGACTTAAT 900

TGAGATGCTCAAAGACTGGGAGAAGCCGAATGGATCAGTGGAACCGGGAGGCTTGAG 960

FIG.2C

U014799-1

CCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAGCCAGACCATCCAGCTGTCCA 1020

AAATAGGATGGCTCTCCAAGAGTGGCTACCCCTAAAACACCTGGTCGTGGACTGAGGC 1080

CCTACCAGACGGGCTCAGTGTGAGGATATTAAATCTTTAGGGATGGAGAGTGCAGC 1140

AAATCAGAAAACGTCGTATTCCCATAATCCCATATAACCAGGAGAAAGTCTGCCAAGGCT 1200

CCCTTATGGTGGAACATCTAGATCGAACCCAGCTTCCCAAAGCTGGATTCCACA 1260

TGTTGAAAACAGACAGATGGCATATGAAAACCTGAAACGACAAGGATCAAGAATTAGGTGA 1320

GTACTTGGCCAGGATGCTAGTTAAATACCCTGAGATCATTAAATTCAAAACCAAGTGAAGGCG 1380

AGTTCCCTGGTCAAGGGCTCATCTGAAGATGACCTGCAGGAAGAGGAACAAATTGAGCAGGGC 1440

FIG.2D

U014799-1

CATCAAAGGATTGAAATCAAGGCAGCTCAGGAGACTGACAAGCTGGCCCCGGTGAG 1500

CAAAGGTTCCCTGTGGGGCCCCGAAGAATGATGATAACCCAAATAGGCAGTGGGA 1560

TGAAGATCTGTTAATGAAAGTGGAAATAACCTCAATCAAGAAAAGGCAGAAAAGGAAG 1620

GGAGCATATTGCTAAGAGAGCAATGAAATATGTAAGCTGCTTTCATTAATTACCCCTAC 1680

TTTCATTCCCACCCAAGCAAATCCCACATTCTCTTCAGTGTGTTGACTTCTATC 1740

CTGTTAACACTGTAATACTTTAAATGATGTAACAGGCAGATGAAACCAGGTCACTGGGA 1800

GTCTGCTTCAATTCCCTGTGAGCTGTTATGGATATGTTGAAATGTTATGACT 1860

CCTTGATAAAAATTATTATGTCATTATCAAGAAAGATACTATGACTGTGTTAAT 1920

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FIG.2E

AGTATATACTAATGGCTGTGGCATTGTTGATGCTCACATATGATAAAAAGTGTCCCTATAA 1980

TTCTATTGAAAGTTTAATATTGAATTATTGTTACTGTCTGTAGCGGTTTG 2040

GAGTACTGGACCAAAAAATAAAGCATTATAAAATAA

2077

FIG.3A

CGGGAGGAATATGCTGGAGCTCCATATAACAAAAGAGGAATCTTCAAA 60

ACATGGCTGAAGCAAAGACCCACTGGGAGCAGGCCCTGTCTTATCCCTTAATT 120
 M A E A K T H W L G A A I S L I P L I F 20
 TCCTCATCTGGGCTGAAGCAGCTTCATTTAGAGAAACCAGCTGCTTCAGAAAGAAC 180
 L I S G A E A A S F Q R N Q L L Q K E P 40
 CAGACCTCAGGTTGGAAAATGTCCAAAAGTTCCAGTCCTGAAATGATCAGGGCTTTGG 240
 D L R L E N V Q K F P S P E M I R A L E 60
 AGTACATAGAAAACCTCCGACAAACAAGCTCATAAAGGAAGAAAGCAGCCCAGAIIATAATC 300
 Y I E N L R Q Q A H K E E S S P D Y N P 80
 CCTACCAAGGTGTCTGTCCCCCTTCAGCAAAAAGAAAATGGCGATGAAAGCCACTTGC 360
 Y Q G V S V P L Q Q K E N G D E S H L P 100
 CCGAGGGATTCACTGAGTGAAAGACTGGATGAGAATAATACTCGAAGCTTTGAGAC 420
 E R D S L S E E D W M R I I L E A L R Q 120
 AGGCTGAAAATGAGCCTCAGTCTGCACCAAAAGAAAATAAGCCCTATGCCTTGAATTCAG 480
 A E N E P Q S A P K E N K P Y A L N S E 140

FIG.3B

AAAAGAACTTTCCAATGGACATGAGTGTATTGAGACACAGCAGTGGCCAGAAAGAA 540
 K N F P M D M S D D Y E T Q Q W P E R K 160
 AGCTTAAGGCACATGCAATTCCCTCCTATGTATTGAGAATTCCAGGGATAACCCCTTA 600
 L K H M Q F P P M Y E E N S R D N P F K 180
 AACGCACAAATGAAATAGTGAGGAACAAATACTCCTCAAAGCCTTGCTACATTGGAAT 660
 R T N E I V E E Q Y T P Q S L A T L E S 200
 CTGTCCTCCAAGAGCTGGGAAACTGACAGGACCAAAACAACCAGAAACGTGAGGGATGG 720
 V F Q E L G K L T G P N N Q K R E R M D 220
 ATGAGGAGCAAAAACTTTACGGATGATGAAAGATGATCTACAAGGCTAACATTG 780
 E E Q K L Y T D D E D I Y K A N N I A 240
 CCTATGAAGATGTGGTCGGGGAGAAGACTGGAAACCCAGTAGGGAGAAATAGAGAGTC 840
 Y E D V V G G E D W N P V E E K I E S Q 260
 AACCCAGGAAGAGGTGAGAGACAGCAAAGAGAAATATAGGAAAAATGAACAAATCAACG 900
 T Q E E V R D S K E N I G K N E Q I N D 280
 ATGAGATGAAACGCTCAGGGCAGCTTGGCATCCAGGAAGAGATCTCGGAAAGAGAGTA 960
 E M K R S G Q L G I Q E D L R K E S K 300

FIG.3C

AAGACCAACTCAGATGATGGCTCCAAAGTAATTGCCATTGTAAAAGGTAGTAAATG 1020
D Q L S D V S K V I A Y L K R L V N A 320
CTGCAGGAAGTGGAGGTTACAGAAATGGGCAAATGGGAAGGGCCACCAGGCTTTG 1080
A G S G R L Q N G Q N G E R A T R L F E 340
AGAACCTCTGATTCTCAGTCTATTAGCTGATTGAAATTCAAGGAATTACAGA 1140
K P L D S Q S I Y Q L I E I S R N L Q I 360
TACCCCAGAAGACTTAATTGAGATGCTCAAACACTGGGAGAAGCCGAATCAGTGG 1200
P P E D L I E M L K T G E K P N G S V E 380
AACCGGGAGGCTTGACCTTCCTGTTGACCTAGCATGACATCTCAGAGGCTGACTTAG 1260
P E R E L D L P V D L D D I S E A D L D 400
ACCATCCAGACCTGTTCCAAGAGATGCTCTCAAGAGTGGCTACCCCTAAACACCTG 1320
H P D L F Q N R M L S K S G Y P K T P G 420
GTCCGTGGACTGAGGCCCTACCAAGACGGCTCAGTGTGAGGATATTAAATTCTT 1380
R A G T E A L P D G L S V E D I L N L L 440
TAGGGATGGAGAGTGCAGCAAATCAGAAAACGTCGTATTTCCCAAGCAAACAT 1440
G M E S A A N Q K T S Y F P K Q I P T F 460

FIG.3D

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TTCCTCAGTGTGACTTATCCTGTTAACACTGTAATACTTTAAATGATGTACA 1500
L F S V L T S I L L T L * 472
GGCAGATGAAACCAGGGTCACTGGGGAGTCTGCCTCTGAGCTGTATCTTG TG 1560

TATGGATATGTGTAATGTTATGACTCCCTGATAAAAAATTATTATGTCCATTATTCAA 1620
GAAAGATATCTATGACTGTTAATAAGTATACTAAATGGCTGTGGCATTTGCTGC 1680

ACATATGATAAAAAGTGTGTCATAATTCTATTGAAAGTTTAATAATTGAATTAT 1740

TTTGTACTGTCTGTAGCGTTGTGGAGTACTGGACCAAAAAATAAGCATTATAAT 1800

ATA

1803

FIG. 4A

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60

SGIIV1 CGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAACAAAAA GAGGAAATCTTCAA
SGIIV2 CGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAACAAAAA GAGGAAATCTTCAA
SGIIV3 CGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAACAAAAA GAGGAAATCTTCAA
SGII CGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAACAAAAA GAGGAAATCTTCAA

120

SGIIV1 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGGCCCTGTCTC TTATCCCTTTAATT
SGIIV2 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGGCCCTGTCTC TTATCCCTTTAATT
SGIIV3 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGGCCCTGTCTC TTATCCCTTTAATT
SGII ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGGCCCTGTCTC TTATCCCTTTAATT

FIG.4B

121 180

SGIIV1 TCCTCATCTCTGGGG CTGAAGCAGGCTCAT TTCAAGAGAAACCAGC TGCTTCAGAAAGAAC
 SGIIV2 TCCTCATCTCTGGGG CTGAAGCAGGCTCAT TTCAAGAGAAACCAGC TGCTTCAGAAAGAAC
 SGIIV3 TCCTCATCTCTGGGG CTGAAGCAGGCTCAT TTCAAGAGAAACCAGC TGCTTCAGAAAGAAC
 SGII TCCTCATCTCTGGGG CTGAAGCAGGCTCAT TTCAAGAGAAACCAGC TGCTTCAGAAAGAAC

181 240

SGIIV1 CAGACCTCAGGTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG
 SGIIV2 CAGACCTCAGGTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG
 SGIIV3 CAGACCTCAGGTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG
 SGII CAGACCTCAGGTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG

FIG.4C

U014799-1

241 300

SGIIV1 AGTACATAGAAACC TCCGACAACAAAGCTC ATAAGGAAAGAAAGCA GCCCAGATTATAATC
SGIIV2 AGTACATAGAAACC TCCGACAACAAAGCTC ATAAGGAAAGAAAGCA GCCCAGATTATAATC
SGIIV3 AGTACATAGAAACC TCCGACAACAAAGCTC ATAAGGAAAGAAAGCA GCCCAGATTATAATC

301 360

SGIIV1 -----
SGIIV2 -----
SGIIV3 CCTACCAAGGTGTCT CTGTCCCCCTCAGC AAAAAGAAAATGGCG ATGAAAGCCACTTGC
SGII CCTACCAAGGTGTCT CTGTCCCCCTCAGC AAAAAGAAAATGGCG ATGAAAGCCACTTGC

FIG. 4D

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FIG.4E

481
SGIIV1 -----
SGIIV2 -----
SGIIV3 AAAAGAACTTTCAA TGGACATGAGTGTG ATTATGAGACACAGC AGTGGCCAGAAAGAA
SGII AAAAGAACTTTCAA TGGACATGAGTGTG ATTATGAGACACAGC AGTGGCCAGAAAGAA

540
SGIIV1 -----
SGIIV2 -----
SGIIV3 AAAAGAACTTTCAA TGGACATGAGTGTG ATTATGAGACACAGC AGTGGCCAGAAAGAA
SGII AAAAGAACTTTCAA TGGACATGAGTGTG ATTATGAGACACAGC AGTGGCCAGAAAGAA

541
SGIIV1 -----
SGIIV2 AGCTTAAGCACATGC AATTCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTA
SGIIV3 AGCTTAAGCACATGC AATTCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTA
SGII AGCTTAAGCACATGC AATTCCCTCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTA

FIG.4F

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601 660

SGIIV1 AACGCCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGIIV2 AACGCCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGIIV3 AACGCCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT
SGII AACGCCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT

661 720

SGIIV1 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAACAAACCAGA AACGTGAGAGGATGG
SGIIV2 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAACAAACCAGA AACGTGAGAGGATGG
SGIIV3 CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAACAAACCAGA AACGTGAGAGGATGG
SGII CTGTCTTCCAAGAGC TGGGAAACTGACAG GACCAAACAAACCAGA AACGTGAGAGGATGG

FIG. 4G

780 SGIIV1 ATGAGGGACAAAC TTTATACGGATGTG AAGATGATATCTACA AGGCTAATAACATTG
 SGIIV2 ATGAGGGACAAAC TTTATACGGATGTG AAGATGATATCTACA AGGCTAATAACATTG
 SGIIV3 ATGAGGGACAAAC TTTATACGGATGTG AAGATGATATCTACA AGGCTAATAACATTG
 SGII ATGAGGGACAAAC TTTATACGGATGTG AAGATGATATCTACA AGGCTAATAACATTG
 721

FIG.4H

841 900

SGIIV1 AAACCAGGAAGG TGAGAGACAGCAAAG AGAATATAAGAAAA ATGAACAAATCAAACG
 SGIIV2 AAACCCAGGAAGGAGG TGAGAGACAGCAAAG AGAATATAAGAAAA ATGAACAAATCAAACG
 SGIIV3 AAACCCAGGAAGGAGG TGAGAGACAGCAAAG AGAATATAAGAAAA ATGAACAAATCAAACG
 SGII AAAACCCAGGAAGGAGG TGAGAGACAGCAAAG AGAATATAAGAAAA ATGAACAAATCAAACG

901 960

SGIIV1 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAACGATC TTGGAAAGAGAGTA
 SGIIV2 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAACGATC TTGGAAAGAGAGTA
 SGIIV3 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAACGATC TTGGAAAGAGAGTA
 SGII ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAACGATC TTGGAAAGAGAGTA

FIG.4I

961 1020

SGIIV1 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTGTA
 SGIIV2 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTGTA
 SGIIV3 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTGTA
 SGII AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTGTA

1021 1080

SGIIV1 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGAAAGGG CCACCAGGGTTTG
 SGIIV2 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGAAAGGG CCACCAGGGTTTG
 SGIIV3 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGAAAGGG CCACCAGGGTTTG
 SGII CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGAAAGGG CCACCAGGGTTTG

FIG.4J

1081	1140	
SGIIV1 AGAACCTCTTGATT CTCAGTCTATTATC AGCTGATTGAATCT CAAGGAATTACAGA	SGIIV2 AGAACCTCTTGATT CTCAAGTCTATTATC AGCTGATTGAATCT CAAGGAATTACAGA	
SGIIV3 AGAACCTCTTGATT CTCAGTCTATTATC AGCTGATTGAATCT CAAGGAATTACAGA		
SGII AGAACCTCTTGATT CTCAGTCTATTATC AGCTGATTGAATCT CAAGGAATTACAGA		
1141	1200	
SGIIV1 TACCCCCAGAAAGACT TAATTGAGATGCTCA AAACTGGGGAGAACG CGAATGGATCAGTGG	SGIIV2 TACCCCCAGAAAGACT TAATTGAGATGCTCA AAACTGGGGAGAACG CGAATGGATCAGTGG	
SGIIV3 TACCCCCAGAAAGACT TAATTGAGATGCTCA AAACTGGGGAGAACG CGAATGGATCAGTGG		
SGII TACCCCCAGAAAGACT TAATTGAGATGCTCA AAACTGGGGAGAACG CGAATGGATCAGTGG		

FIG.4K

1201

SGIV1 AACGGAGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTAG
 SGIV2 AACGGAGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTAG
 SGIV3 AACGGAGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTAG
 SGII AACGGAGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTAG

1260

SGIV1 ACCATCCAGACCTGT TCCAAATAAGGATGC TCTCCAAGAGTGGCT ACCCTAAACACCTG
 SGIV2 ACCATCCAGACCTGT TCCAAATAAGGATGC TCTCCAAGAGTGGCT ACCCTAAACACCTG
 SGIV3 ACCATCCAGACCTGT TCCAAATAAGGATGC TCTCCAAGAGTGGCT ACCCTAAACACCTG
 SGII ACCATCCAGACCTGT TCCAAATAAGGATGC TCTCCAAGAGTGGCT ACCCTAAACACCTG

FIG.4L

1321	SGIIV1 GTCGTGCTGGACTG AGGCCCTACCAAGACG GGCTCAGTGTGAGG ATATTTAAATCTT SGIIV2 GTCGTGCTGGACTG AGGCCCTACCAAGACG GGCTCAGTGTGAGG ATATTTAAATCTT SGIIV3 GTCGTGCTGGACTG AGGCCCTACCAAGACG GGCTCAGTGTGAGG ATATTTAAATCTT SGII GTCGTGCTGGACTG AGGCCCTACCAAGACG GGCTCAGTGTGAGG ATATTTAAATCTT	1380	
1381		1440	
		SGIIV1 TAGGGATGGAGACTG CAGCAAATCAGAAAA CGTCGTATTTCCCA ATCCATAACCAGG SGIIV2 TAGGGATGGAGACTG CAGCAAATCAGAAAA CGTCGTATTTCCCA ATCCATAACCAGG SGIIV3 TAGGGATGGAGACTG CAGCAAATCAGAAAA CGTCGTATTTCCCA A----- SGII TAGGGATGGAGACTG CAGCAAATCAGAAAA CGTCGTATTTCCCA ATCCATAACCAGG	

FIG.4M

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1441
SGIIV1 AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCGAGCTTCCCA
SGIIV2 AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCGAGCTTCCCA
SGIIV3 -----

SGII AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCGAGCTTCCCA

1501
SGIIV1 AAGCTGCCTGGATT CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA
SGIIV2 AAGCTGCCTGGATT CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA
SGIIV3 -----

SGII AAGCTGCCTGGATT CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA

FIG.4N

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1561

SGIIV1 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATT
SGIIV2 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATT
SGIIV3 -----

SGII AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATT

1620

SGIIV1 ATTCAAACCAAGTGA AGCGAGTTCCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG
SGIIV2 ATTCAAACCAAGTGA AGCGAGTTCCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG
SGIIV3 -----

SGII ATTCAAACCAAGTGA AGCGAGTTCCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG

1621

FIG.4O

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1681	1740
SGIIV1 AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	
SGIIV2 AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	
SGIIV3 -----	
SGII AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	

1741	1800
SGIIV1 ACAAGCTGGCCCCGG TGAGCAAAAGGTTCCTGTGGGGCCCCGA AGAATGATGATAACCC	
SGIIV2 ACAAGCTGGCCCCGG TGAGCAAAAGGTTCCTGTGGGGCCCCGA AGAATGATGATAACCC	
SGIIV3 -----	
SGII ACAAGCTGGCCCCGG TGAGCAAAAGGTTCCTGTGGGGCCCCGA AGAATGATGATAACCC	

FIG.4P

1801 1860

SGIIV1 CAAATAGCCAGTACT GGGATGAAGATCTGT TAATGAAAGTGGCTGG AATAACCTCAATCAAG
 SGIIV2 CAAATAGCCAGTACT GGGATGAAGATCTGT TAATGAAAGTGGCTGG AATAACCTCAATCAAG
 SGIIV3 -----
 SGIIV1 CAAATAGCCAGTACT GGGATGAAGATCTGT TAATGAAAGTGGCTGG AATAACCTCAATCAAG

1861 1920

SGIIV1 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAAATATGTAAGCTG
 SGIIV2 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAAATATGTAAGCTG
 SGIIV3 -----
 SGIIV1 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAAATATGTAAGCTG

FIG.4Q

1921	1980	1981	2040
SGIIV1 CTTTCATTAATTACC CTACTTTCATTCCCTC CCACCCCCAAGCAAAT CCCAACATTTCTCTT	SGIIV2 CTTTCATTAATTACC CTACTTTCATTCCCTC CCACCCCCAAGCAAAT CCCAACATTTCTCTT	SGIIV3 ----- ----- ----- ----- GCAAAT CCCAACATTTCTCTT	SGIIV1 CAGTGTGTGACTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT
SGIIV2 CAGTGTGTGACTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT	SGIIV3 CAGTGTGTGACTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT	SGII CAGTGTGTGACTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT	SGIIV1 CAGTGTGTGACTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT

FIG.4R

2041 2100

SGII V1 GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCCTCTGAGCTGTT ATCTTGTGTATGGAT
 SGII V2 GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCCTCTGAGCTGTT ATCTTGTGTATGGAT
 SGII V3 GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCCTCTGAGCTGTT ATCTTGTGTATGGAT
 SGII GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCCTCTGAGCTGTT ATCTTGTGTATGGAT

2100 2160

SGII V1 ATGTGTAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
 SGII V2 ATGTGTAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
 SGII V3 ATGTGTAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT
 SGII ATGTGTAATGTTAT GACTCCTTGATAAAA AATTATTATGTCCA TTATTCAAGAAAGAT

FIG.4S

2161

SGII V1 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
 SGII V2 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
 SGII V3 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG
 SGII ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG

2220

SGII V1 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V2 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V3 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA

2221

SGII V1 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V2 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V3 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA

2280

SGII V1 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V2 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII V3 ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA
 SGII ATAAAAGTGTCCCT ATAATTCTATTGAAA GTTTTAATATTAT TGAATTATTGTTA

FIG.4T

2281 SGIIIV3 CTGTCTGTAGCGTT TGTGGAGTACTGGAC CAAAAAAATAAAGCA TTATAAATATA 1997
SGIIIV1 CTGTCTGTAGCGTT TGTGGAGTACTGGAC CAAAAAAATAAAGCA TTATAAATATA 2077
SGIIIV2 CTGTCTGTAGCGTT TGTGGAGTACTGGAC CAAAAAAATAAAGCA TTATAAATATA 1803
SGII SGIIIV1 CTGTCTGTAGCGTT TGTGGAGTACTGGAC CAAAAAAATAAAGCA TTATAAATATA 2336

FIG.5A

1	MAEAKTHWLGAAALSL	IPLIFLISGAEAAASF	QRNQLLQKEPDLRLE	NVQKFPSPEMIRALE
	SGIIV1			
60	MAEAKTHWLGAAALSL	IPLIFLISGAEAAASF	QRNQLLQKEPDLRLE	NVQKFPSPEMIRALE
	SGIIV2			
61	MAEAKTHWLGAAALSL	IPLIFLISGAEAAASF	QRNQLLQKEPDLRLE	NVQKFPSPEMIRALE
	SGIIV3			
120	MAEAKTHWLGAAALSL	IPLIFLISGAEAAASF	QRNQLLQKEPDLRLE	NVQKFPSPEMIRALE
	SGII			
61	YIEN-----	-----	-----	-----
	SGIIV1			
62	YIENLRQQAHK-----	-----	-----	-----
	SGIIV2			
63	YIENLRQQAHKEESS	PDYNPYQGVSVPLQQ	KENGDESHLPERDSL	SEEDWMRITILEALRQ
	SGIIV3			
64	YIENLRQQAHKEESS	PDYNPYQGVSVPLQQ	KENGDESHLPERDSL	SEEDWMRITILEALRQ
	SGII			

FIG.5B

121		
SGIIV1	- - - - -	180
SGIIV2	- - - - -	
SGIIV3	AENEPQSAPKENKPY	ALNSEKNFPMDDMSDD
SGII	AENEPQSAPKENKPY	ALNSEKNFPMDDMSDD
		YETQQWPERKLKHMQ
		FPPMYEENSRDNPFK
181		
SGIIV1	RTNEIVEEQYTPOSL	ATLESVFQELGKLTG
SGIIV2	- - - - -	
SGIIV3	RTNEIVEEQYTPOSL	ATLESVFQELGKLTG
SGII	RTNEIVEEQYTPOSL	ATLESVFQELGKLTG
		PNNQKERMDEEQQL
		YTDDDEDDIYKANNIA
182		
SGIIV1	- - - - -	240
SGIIV2	- - - - -	
SGIIV3	RTNEIVEEQYTPOSL	ATLESVFQELGKLTG
SGII	RTNEIVEEQYTPOSL	ATLESVFQELGKLTG
		PNNQKERMDEEQQL
		YTDDDEDDIYKANNIA

FIG.5C

241 300

SGIIIV1 YEDVVGGEDWNPVEE KIESQTQEEVRDSKE NIGKNEQINDEMTRS GQLGIQEEDDLRKE
 SGIIIV2 -----
 SGIIIV3 YEDVVGGEDWNPVEE KIESQTQEEVRDSKE NIGKNEQINDEMTRS GQLGIQEEDDLRKE
 SGII YEDVVGGEDWNPVEE KIESQTQEEVRDSKE NIGKNEQINDEMTRS GQLGIQEEDDLRKE

301 360

SGIIIV1 DQLSDDVSKVIAYLK RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLIQI
 SGIIIV2 -----
 SGIIIV3 DQLSDDVSKVIAYLK RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLIQI
 SGII DQLSDDVSKVIAYLK RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLIQI

FIG.5D

361

SGIIV1 PPEDLIEMLKTKTGEKP NGSVEPERELDLPLVD LDDISEADLDHPLDLF QNRMLSKSGYPKTPG
 SGIIV2 -----
 SGIIV3 PPEDLIEMLKTKTGEKP NGSVEPERELDLPLVD LDDISEADLDHPLDLF QNRMLSKSGYPKTPG
 SGII PPEDLIEMLKTKTGEKP NGSVEPERELDLPLVD LDDISEADLDHPLDLF QNRMLSKSGYPKTPG

420

SGIIV1 RAGTEALPDGLSVED IINLLGMEASAANQKT SYFPNPYNQEKVILPR LPYGAGRSSRSNQLPK
 SGIIV2 -----
 SGIIV3 RAGTEALPDGLSVED IINLLGMEASAANQKT SYFP-----
 SGII RAGTEALPDGLSVED IINLLGMEASAANQKT SYFPNPYNQEKVILPR LPYGAGRSSRSNQLPK

480

FIG.5E

481 540

SGIIV1	AAWI PHVENRQMAYE	NLNDKDQELGEYLAR	MLVKYPEIIINSNQVK	RVPGQQGSSEDDLQEE
SGIIV2				
SGIIV3				
SGII	AAWI PHVENRQMAYE	NLNDKDQELGEYLAR	MLVKYPEIIINSNQVK	RVPGQQGSSEDDLQEE

541	540			
SGIIV1	EQIEQAIKEHLNQGS	SQETDKILAPVSKRFP	VGPPPKNDTTPNRQYW	DEDLLMKVLEYLNQE
SGIIV2				
SGIIV3				
SGII	EQIEQAIKEHLNQGS	SQETDKILAPVSKRFP	VGPPPKNDTTPNRQYW	DEDLLMKVLEYLNQE

FIG.5F

601 SGII V1 KAEKGREHIAKRA ME NM----- 504
SGII V2 ----- --KESLSTCNSLLC MKRIPGITPLNAQM K- 98
SGII V3 ----- --KQIPTFLFSVLTS ILLTL----- 472
SGII KAERGREHIAKRA ME NM----- 617